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The Cycle of Trauma: Relationship Aggression in Male Vietnam Veterans With Symptoms of Posttraumatic Stress Disorder

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This study examined the association between symptoms of Posttraumatic Stress Disorder (PTSD) in male Vietnam veterans and their use of aggressive behavior in relationships with intimate female partners. Fifty couples participated in the study. Veterans reported on their PTSD symptoms, and veterans and partners completed measures assessing the veterans' use of physical, verbal, and psychological aggression during the preceding year as well as measures of their own perceptions of problems in the relationship. Results indicated that PTSD symptomatology places veterans at increased risk for perpetrating relationship aggression against their partners. The association between veterans' PTSD symptoms and their use of aggression in relationships was mediated by relationship problems. Clinical implications of these findings and suggestions for future research are discussed.

During the past two decades, researchers have generated an extensive literature on the psychological problems experienced by many Vietnam veterans since their service in Vietnam. As a result, the most notable set of psychological symptoms, Posttraumatic Stress Disorder (PTSD), is known to be highly prevalent in this population. The National Vietnam Veterans Readjustment Study (NVVRS), a comprehensive study mandated by Congress in 1983 to examine the prevalence of PTSD and other psychological problems among Vietnam veterans, revealed that 30.6% of male Vietnam theater veterans (i.e., those who served in Vietnam or its surrounding waters or air space between August 5, 1964, and May 7, 1975) had PTSD during their lifetime. Half of these men (i.e., 15.3%) were suffering from PTSD during the 6 months preceding the survey (Kulka et al., 1990). Furthermore, an additional 11.1% of male Vietnam theater veterans were suffering from some symptoms of PTSD without meeting full criteria for the disorder (partial PTSD) during the 6 months prior to the survey. Collectively, these percentages indicate that over one fourth of male Vietnam theater veterans were experiencing posttraumatic stress problems at the time of the survey.

Many of the symptoms of PTSD carry the potential to have a negative impact on relationship functioning of the traumatized individual. Feelings of detachment from others,

restricted range of affect, and outbursts of anger may interfere with establishing and maintaining intimacy, harmony, and commitment in relationships with others. Research on male Vietnam veterans has demonstrated an association between PTSD and a variety of difficulties that may negatively affect their interpersonal relationships. For example, Roberts and colleagues (1982) found that combat veterans with PTSD reported more problems in areas of intimacy and sociability when compared with combat veterans without PTSD and noncombat veterans. It has also been shown that, compared to male Vietnam veterans without PTSD, veterans with PTSD reported less expressiveness, less disclosure, and higher levels of general hostility and physical aggression toward their female partners (Carroll, Rueger, Foy, & Donahoe, 1985). Jordan and associates (1992) produced comparable findings in a study of theater veterans and their female partners using data from the NVVRS. Female partners of veterans with PTSD reported more relationship problems and a higher prevalence of partner violence than did female partners of veterans without PTSD. This finding is consistent with results of earlier anecdotal reports indicating that wives of Vietnam veterans with PTSD experienced high levels of marital violence (Verbosky & Ryan, 1988; Williams, 1980).

Thus, research suggests that in addition to many interpersonal difficulties, male Vietnam veterans suffering from PTSD are at an increased risk for engaging in physical violence against their partners. However, because PTSD status was dichotomized in prior research, it is unclear to what extent partial PTSD might also place veterans at risk for using physical aggression against their partners. Furthermore, given the prevalence of psychological abuse in physically abusive relationships (Pan, Neidig, & O'Leary, 1994) and the detrimental impact of psychological abuse on women who experience it (Aguilar & Nightingale, 1994; Follingstad, Rutledge, Berg, & Hauser, 1990), investigation of verbally and psychologically aggressive behavior in Vietnam veterans with PTSD symptoms is warranted. Although it is important, the knowledge that PTSD places Vietnam veterans at increased risk for perpetrating relationship violence is limited in utility. The mechanisms through which PTSD influences the likelihood that Vietnam veterans will engage in relationship aggression have not been explored. Thus, knowledge of potential mediators of the association between PTSD and relationship aggression in this population could significantly enhance efforts to intervene clinically and reduce and/or prevent veterans' future perpetration of violence against their partners.

The established association between increased levels of conflict and relationship violence (Coleman & Straus, 1990; Hotaling & Sugarman, 1990; Riggs, 1993; Riggs, O'Leary, & Breslin, 1990; Straus, Gelles, & Steinmetz, 1980) lends support to the hypothesis that high levels of relationship conflict may serve a causal function in the occurrence of relationship violence (Riggs & O'Leary, 1989). Verbally aggressive behavior has also been linked to increased relationship conflict (Hotaling & Sugarman, 1990). Given the apparent increase in relationship problems reported by male Vietnam veterans with PTSD and their female partners, in comparison to Vietnam veterans without PTSD, conflict associated with relationship problems may account for the increased incidence of relationship violence among male Vietnam veterans with PTSD.

The purpose of the current study was twofold. First, we planned to replicate and expand previous findings of increased relationship aggression in male Vietnam veterans with PTSD symptoms. Therefore, in addition to assessing physical aggression, we also assessed verbal and psychological aggression in a sample of 50 male Vietnam veterans and their female partners. Further, because PTSD severity is associated with combat exposure (Fontana & Rosenheck, 1994; Foy & Card, 1987; Keane et al., 1989), we also assessed combat expo-

sure in order to rule this out as a possible confounding variable in the association between PTSD symptoms and relationship aggression. Second, we examined the mediating effects of relationship conflict on the association between PTSD symptomatology and relationship aggression. Consistent with prior research, we predicted a direct relationship between PTSD symptomatology and relationship aggression, including physical, verbal, and psychological aggression. Furthermore, we predicted that the association between PTSD symptomatology and these three forms of relationship aggression would be at least partially explained by relationship conflict.

METHOD

Participants

Participants were 50 male Vietnam veterans and their intimate female partners. Participants were recruited from the metropolitan area of a large northeastern city via newspaper advertisements and flyers distributed throughout a Department of Veterans Affairs Medical Center, requesting participants to take part in a research study examining intimate relationships of male Vietnam theater veterans. All men in the study had served on active duty in the U.S. armed forces in Vietnam or the waters of Vietnam between August 5, 1964, and May 7, 1975. The couples had been married or cohabiting for at least one year prior to participation in the study.

Veterans averaged 48.76 years of age (SD = 4.96), and their partners averaged 44.06 years of age (SD = 5.86). Couples reported having lived together for an average of 13.17 years (SD = 8.97). Veterans' mean number of children was 2.14 (SD = 1.84), and partners reported having an average of 1.83 children (SD = 1.54). Veterans' modal number of tours in Vietnam was one, and all but one veteran reported direct exposure to combat while in Vietnam. Additional demographic information for veterans and partners is presented in Table 1.

Instruments

Combat Exposure Scale (CES). The CES (Keane et al., 1989) is a 7-item measure designed to assess the subjective report of wartime stressors experienced by combatants. Subjects are asked to indicate the frequency with which they experienced each combat event while they served in the military. The CES possesses adequate internal consistency (α = .85) and test-retest reliability (r = .97).

Conflict Tactics Scales (CTS). The CTS (Straus, 1979) is an 18-item questionnaire used to assess the extent to which spouses use reasoning, verbal aggression, and physical aggression in resolving conflicts in the relationship. The graduated series of items range from "tried to discuss an issue calmly" to "used a knife or gun." Veterans indicated the frequency of their own use of each behavior assessed by the CTS during the one-year period preceding the assessment. Women partners indicated the frequency of veterans' use of each behavior in the past year. Responses were summed to produce separate scores for verbal and physical aggression. The CTS has been shown to be a reliable (Straus, 1979) and valid measure of the occurrence of interpersonal violence (Arias & Beach, 1987; Barling, O'Leary, Jouriles, Vivian, & MacEwen, 1987).

PTSD Checklist Military Version (PCL-M). The PCL-M (Weathers, Huska, & Keane, 1991) is a 17-item self-report questionnaire designed to assess PTSD symptomatology related to military experiences, including symptoms of reexperiencing, avoidance and numbing, and hyperarousal. Respondents are presented with a list of symptoms of PTSD and asked to indicate the extent to which they have been bothered by each symptom in the past month using a 5-point Likert scale. Responses range from "Not at all" to "Extremely." Internal consistency ($a = .97$) and test-retest reliability ($r = .96$) of the PCL have been demonstrated, and the PCL correlates ($r = .93$) with the Mississippi Scale (Keane et al., 1988).

Psychological Maltreatment of Women Inventory (PMWI). The PMWI (Tolman, 1989) is a self-report scale used to assess nonphysically abusive behaviors exhibited by men who batter their wives/partners. The measure comprises 58 items which assess forms of dominance/isolation and emotional/verbal abuse. Dominance/isolation items are behaviors related to rigid observance of traditional sex roles, demands for subservience, and isolation from resources. Emotional/verbal abuse items include verbal attacks, behavior that degrades women, and withholding of emotional resources. Respondents are asked to respond to each item by indicating the relative pervasiveness of occurrence on a 5-point scale ranging from "never" to "very frequently." Veterans reported on their own behavior, and women

TABLE 1. Demographic Characteristics of Vietnam Veterans and Their Partners

Demographic Variable	Veterans (%)	Partners (%)
Race		
Caucasian	89.8	89.9
African American	6.1	4.1
Hispanic	2.0	4.1
Asian American	0.0	0.0
Other	2.0	2.0
Religious preference		
Catholicism	44.9	55.1
Protestantism	18.4	22.4
Judaism	4.1	10.2
Islam	2.0	0.0
Buddhism	4.1	0.0
Other	14.3	8.2
None	18.4	4.1
Education		
High School/GED	12.8	30.6
Some College	57.4	36.7
College	8.5	10.2
Graduate School	20.4	20.4
Employment status		
Full time	49.0	52.1
Part time	10.2	20.9
Retired/Disabled	16.3	6.3
Unemployed	24.4	18.8
Yearly wage income		
0–$10,000	28.6	34.0
$10,001–$20,000	14.3	21.2
$20,001–$30,000	12.2	10.7
$30,001–$40,000	14.3	12.8
$40,001–Above	30.6	21.2

reported on their partners' behavior. The existence of the two subscales has been supported by factor analysis (Tolman, 1989). The PMWI has also been shown to be internally consist, with coefficient alphas ranging from .91 to .95 (Dutton & Hemphill, 1992; Tolman, 1989).

Relationship Problems Scale (RPS). The RPS (Riggs, 1993) is a 32-item questionnaire designed to assess the severity of problems in relationships. Items include "problems over money," "unsatisfying sex relations," "your partner's alcohol or drug use," and "you and your partner have problems communicating." Respondents are asked to rate each problem on a scale of 0-4, with responses ranging from "no problem" to "a major problem." Three summary scores (total number of problems, total problem severity, and average problem severity) and seven content subscales (e.g., partner jealousy, friends, no time together) can be computed from the RPS (Riggs, 1993). The present study used only the total problem severity score. The RPS total score has adequate internal consistency ($\alpha = .86$) and correlates significantly with reports of relationship aggression (Riggs, 1993).

In preparation for mediational analyses, we aggregated veterans' and partners' reports of relationship problems and veterans' use of aggression in the relationship. More specifically, we averaged veterans' and partners' RPS scores to obtain one score representative of the couples' reports of problems in their relationships. Additionally, we computed standardized scores for veterans' reports of physical, verbal, and psychological aggression, as well as for their partners' reports of physical, verbal, and psychological victimization in the relationship. These six Z- scores were subsequently summed to produce a total relationship aggression score representing veterans' and partners' reports of the veterans' abusive behavior. Although it was necessary to aggregate the data in order to reduce the number of variables in the mediational analyses, we recognize that individual reports convey valuable information. Therefore, individual as well as combined scores will be presented in the results.

Procedure

Participants were informed they were taking part in a study examining relationships of male Vietnam veterans and their female partners. All participants were required to read and sign informed consent forms prior to participation in the study. Veterans and their partners were given separate consent forms. The experimenter also provided a verbal description of the nature of participation in the study, and participants were given the opportunity to ask questions prior to the study.

Participants completed the self-report measures listed above and provided demographic information. To ensure confidentiality, veterans and their partners were placed in separate rooms to complete the questionnaires. Participants then completed several communication tasks which are reported elsewhere (Riggs & Byrne, 1996). Upon completion of the study, participants were debriefed and provided with another opportunity to ask questions related to the project. Couples were reimbursed $40.00 for their participation. In the few instances in which participation in this study produced emotional distress, treatment was made available to the veteran individually or to the veteran and his partner as a couple. Additionally, when one of the women taking part in the study experienced distress and requested information about treatment options, she was given appropriate community referrals.

RESULTS

According to veterans' reports of relationship aggression, 34% of veterans engaged in at least one act of violence against their partners during the preceding year. Additionally, 92% reported engaging in verbal aggression, and 100% reported using psychological aggression against their partner during the past year. Women partners' reports of victimization were comparable. Thirty percent of partners reported physical victimization, 88% reported being the victim of verbal aggression, and 100% reported that their partners had engaged in psychological aggression during the past year. Researchers in the area of marital violence (Margolin, 1987; Szinovacz, 1983; Szinovacz & Egley, 1995) have recommended using aggregate husband and wife reports to estimate the rate of violence within couples. In the present sample, 42% of the men had engaged in physical aggression against their partners by their own and/or their partners' reports. Means and standard deviations of aggression and victimization scores are presented in Table 2. Paired-samples *t*-tests revealed no differences between veterans' and partners' reports of veterans' physical and verbal aggression. However, women were found to report higher levels of psychological aggression than veterans, $t\ (1,49) = 2.03$; $p < .05$.

Correlations Among Combat Exposure, PTSD, Relationship Problems, and Relationship Aggression

Zero-order correlations among PTSD symptoms as measured by the PCL-M, veterans' reports of relationship aggression, partners' reports of victimization, and total relationship problems scores are displayed in Table 3. Consistent with previous research, veterans' PTSD symptoms were directly related to their reports of physical violence. Also consistent with our expectations, veterans' PTSD symptoms were directly related to their reports of verbal and psychological aggression against their intimate partners. This was also the case for women's reports of verbal and psychological victimization. As veterans' PTSD symptoms increased, their partners reported increased levels of verbal and psychological abuse. Surprisingly, however, and contrary to data from the NVVRS (Jordan et al., 1992) women's reports of physical abuse were not significantly related to veterans' PTSD symptoms. Veterans' self-reported combat exposure was significantly correlated with veterans' use of verbal aggression. Relationship problems were correlated with most measures of veterans' aggressive behavior.

TABLE 2. Means and Standard Deviations of Aggression and Victimization Scores

	M	*SD*
Veterans' reports of aggression		
Physical (CTS)	2.12	3.9
Verbal (CTS)	12.52	9.58
Psychological (PMWI)	89.48[a]	26.06
Partner's reports of victimization		
Physical (CTS)	2.10	5.13
Verbal (CTS)	11.56	9.97
Psychological (PMWI)	98.40[a]	38.46

Note. [a]Means differ $p < .05$.

TABLE 3. Intercorrelations Among Combat Exposure, PTSD, Relationship Aggression and Relationship Problems

	2	3	4	5	6	7	8	9	10	11	12
1. Veterans' Combat Exposure (CES)	4.3**	.21	.29*	.13	.14	.35**	.23	.18	.19	.20	.30*
2. Veterans' PTSD (PCL-M)		.38**	.66***	.57***	.23	.34*	.34*	.65***	.36*	.57***	.51***
3. Veterans' Physical Aggression (CTS)			.64***	.58***	.34*	.24	.48***	.53***	.32*	.48***	.76***
4. Veterans' Verbal Aggression (CTS)				.73***	.09	.17	.51***	.69***	.43*	.63***	.80***
5. Veterans' Psychological Aggression (PMWI)					.20	.31*	.60***	.64***	.32*	.55***	.74***
6. Partners' Physical Victimization (CTS)						.58***	.20	.21	.26	.35*	.66***
7. Partners' Verbal Victimization (CTS)							.31*	.40**	.49***	.47**	.77***
8. Partners' Psychological Victimization (PMWI)								.61***	.53***	.63***	.85***
9. Veterans' Relationship Problems (RPS)									.66***	.93***	.71***
10. Partners' Relationship Problems (RPS)										.89***	.51***
11. Combined Relationship Problems (RPS)											.68***
12. Combined Total Aggression (CTS, PMWI)											

Note. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .0001$.

Test of Mediational Hypothesis

As shown in Table 3, veterans' PTSD symptomatology was directly associated with both veterans' and partners' reports of problems in the relationship. As PTSD symptoms increased in frequency and severity, veterans and their partners reported more frequent and severe relationship problems.

Guidelines set forth by Baron and Kenny (1986) were utilized to examine the proposed mediational hypotheses. A series of three regressions are outlined: (1) regressing the mediator on the independent variable, (2) regressing the dependent variable on the independent variable, and (3) regressing the dependent variable on both the independent variable and on the mediator. Mediation is established if the first two regressions are significant, the mediator is a significant predictor of the dependent variable in the third regression, and the regression coefficient associated with the independent variable is significantly reduced in the third equation in relation to the second equation.

First, the relationship problems' composite score was regressed on veterans' PTSD symptoms, resulting in significance, $p < .0001$. Veterans' PTSD symptomatology predicted a significant amount of the variance of veterans' and partners' relationship problems. Next, the total relationship aggression score was regressed on veterans' PTSD symptomatology, also resulting in significance, $p < .001$. Veterans' PTSD symptoms were a significant predictor of veterans' and partners' total report of veterans' relationship aggression. Hence, to test for the potential mediating effect of relationship problems, relationship aggression was regressed on both veterans' PTSD symptoms and relationship problems. In order for a mediating effect to be present, relationship problems must be a significant predictor of relationship aggression, and the regression coefficient for veterans' PTSD symptoms must be reduced in this final regression equation relative to the previous regression equation. As shown in Table 4, relationship problems remained significant in predicting relationship aggression, $p < .0001$, and the coefficient associated with veterans' PTSD symptoms was no longer significant. Accordingly, mediation of the association between PTSD symptoms and relationship aggression was established. That is, relationship problems were found to significantly account for the positive association between veterans PTSD symptomatology and their use of aggression within their intimate relationships.

Combat Exposure and Relationship Aggression

Consistent with prior research (Fontana & Rosenheck, 1994; Foy & Card, 1987; Keane et al., 1989), level of combat exposure was significantly related to symptoms of PTSD in this sample (see Table 3). Combat exposure was also related to veterans' use of aggression

TABLE 4. Regression Analyses Testing Mediating Effects of Relationship Problems on the Association Between PTSD and Relationship Aggression

Predictor(s)	Criterion	β	Adj R^2
1. Veterans' PTSD syptoms	Relationship Problems	.57**	.31
2. Veterans' PTSD symptoms	Relationship Aggression	.51*	.25
3. Relationship Problems		.57**	
Veterans' PTSD symptoms	Relationship Aggression	.18	.46

Note. Adj. = adjusted; In step 3, $\Delta R^2 = .22$**

*$p < .001$. **$p < .0001$.

against their partners. Thus, a multiple regression analysis was conducted in which the total relationship aggression score was regressed on PTSD symptoms and combat exposure. Results indicated that PTSD symptoms were significant in predicting relationship aggression, $t\,(1) = 3.60$, $p < .005$, but combat exposure was not, $t\,(1) = .60$, *ns*.

DISCUSSION

The results of this study provided support for the hypotheses being tested. Consistent with prior research, male Vietnam veterans with increased PTSD symptomatology reported greater levels of physically violent behavior against their intimate female partners. Also, higher levels of PTSD symptoms were associated with more frequent and severe use of verbally and psychologically abusive behavior in their intimate relationships. Further, the association between PTSD symptoms and relationship aggression was not accounted for by veterans' level of combat exposure. Although women partners reported higher levels of verbal and psychological victimization as veterans' PTSD symptoms increased, the data did not replicate prior findings of a significant relationship between veterans' PTSD symptoms and women's reports of physical victimization.

Additionally, relationship conflict, as measured by the severity of problems in the relationship, was found to mediate the association between veterans' PTSD symptomatology and their use of relationship aggression. That is, veterans with higher levels of PTSD symptoms experienced more frequent and severe relationship problems. Furthermore, greater levels of problems in the relationship increased the likelihood that veterans would engage in relationship aggression against their intimate partners. Taken together, these results suggest a model in which combat exposure leads to PTSD, which in turn contributes to increased relationship conflict. This conflict contributes to higher rates of relationship aggression. However, this model must be viewed as speculative until it is replicated by other researchers with larger samples.

Clearly, relationship aggression is a significant problem for some male veterans with PTSD symptoms and their female intimate partners. It also appears that veterans' use of aggressive behavior against their partners is related to problems within the relationship. An earlier study found Vietnam veterans with PTSD to have less effective interpersonal problem-solving skills than veterans without PTSD (Nezu & Carnevale, 1987). Thus, interventions containing components aimed at increasing veterans' problem-solving abilities may help reduce the frequency and severity of problems in their relationships, and subsequently decrease the levels of aggressive behavior veterans exhibit against their partners.

The existence of a significant relationship between veterans' PTSD symptoms and their reports of physical aggression, but not their partners' reports of physical victimization, may reflect certain response styles of the participants. There are several possible explanations for the discrepancies. One possibility is that veterans with higher levels of PTSD symptomatology overreported their own use of aggression in their relationships. Clinically, Vietnam veterans with PTSD appear acutely aware of their ability to perpetrate violence. This may be a result of having perpetrated severe violence in the past while in combat. Thus, it may be that veterans with higher levels of PTSD symptoms are more vigilant of their own aggressive impulses and therefore more likely to identify behavior as aggressive. It is also conceivable that some women in this study underreported their veteran partners' aggressive behavior. Furthermore, some women in the study may have been reluctant to conceptualize veterans' behavior as violent or aggressive because perceiving their partners in this man-

ner may have negative implications for the relationship or for their own self-perceptions. Finally, the small sample in the present study may not have provided sufficient power to detect the relationship between veterans' PTSD symptoms and their partners' reports of physical victimization.

The present results add to the growing evidence that PTSD symptomatology places male Vietnam veterans at increased risk for perpetrating physical, verbal, and psychological aggression against their female partners. Relationship conflict or problems were found to be one mechanism through which PTSD exerts an influence on veterans' use of aggressive behavior in intimate relationships. Clinically, findings of this study highlight the importance of assessing relationship difficulties of Vietnam veterans and incorporating these problems in treatment planning. Because of the apparent dysfunctional interpersonal correlates of PTSD, some researchers and clinicians working with Vietnam veterans have stressed the importance of partner and family involvement in treatment for PTSD (Carroll, Foy, Cannon, & Zwier, 1991; Carroll et al., 1985; Jordan et al., 1992; Rosenheck & Thomson, 1986; Stanton & Figley, 1978). In doing so, clinicians must be aware of the risk for relationship aggression associated with PTSD and consider safety and other needs of the veterans' family members. Further, although a reduction in relationship problems may lead to a decrease in veterans' aggressive behavior, care must be taken to avoid attributing the occurrence of aggressive behavior to the relationship, implying that the female partners are in some way responsible for their own victimization. Women partners may contribute to the existence of problems in these relationships, but veterans themselves are responsible for the manner in which they choose to respond to relationship conflict.

Interpretation of the current findings must be tempered by limitations of this investigation. Participants in this study were a small self-selected sample of male Vietnam veterans and their female partners who volunteered to participate in a study of veterans' intimate relationships. Furthermore, couples were required to have been cohabitating for at least one year. Also, physically aggressive veterans reportedly engaged in relatively low levels of violent behavior against their partners. Thus, veterans with very distressed relationships and/or those who engage in severely abusive behavior in their relationships were not adequately represented in this study. Additionally, the correlational nature of this study precludes confirmation of a causative hypothesis. The causal direction may differ from what we have proposed.

Findings of this study also raise some interesting questions for future research in this area. Within this population, there are likely other factors that underlie the association between PTSD and aggressive relationship behavior. A more thorough examination of potential mediating and moderating variables would provide researchers and clinicians with a more detailed understanding of the mechanisms through which PTSD influences the likelihood that male veterans will aggress against their intimate female partners. Exploring the association between PTSD and relationship aggression in other populations at risk for developing PTSD may also be warranted. Given the association between PTSD and relationship aggression, it may be useful to examine whether other types of psychopathology, such as anxiety and mood disorders, are related to men's use of aggression in their intimate relationships. Relationship problems and problem-solving skills offer one possible mechanism linking psychopathology and marital violence. Holtzworth-Munroe (1992) suggested maritally violent men experience social information-processing deficits, including difficulties generating and enacting nonaggressive problem solutions. Problem-solving deficits have been documented in depression and may serve to increase conflict in relationships of depressed persons (Marx, Williams, & Claridge, 1992; Nezu & Ronan, 1987).

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